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Notice of Allowability

Application No.

09/729,371

Examiner

Camquy Truong

Applicant(s)

DILLENBERGER ET AL.

Art Unit

2195

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the amendment filed on 6/16/05.
2. ☒ The allowed claim(s) is/are 1-13, 15-31, 33-49 and 51-55 now renumbered as claims 1-52.
3. ☐ The drawings filed on _____ are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

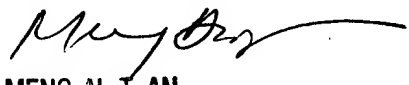
Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☒ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☒ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☒ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|--|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input checked="" type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input checked="" type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____ |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____ |


MENG-LI T. AN
SUPERVISOR SENIOR EXAMINER
CENTER 2100

Examiner's Amendment

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

2. Authorization for this examiner's amendment was given in a telephone interview with Mr. Paul D. Greeley (Registration number: 31,019), on 8/15/2005.

3 The claims have been amended as follows:

1. A method comprising:
managing the availability to do work of a plurality of cooperating
computers connected in a network by:
 - (a) identifying a set of specific ones of said plurality of cooperating
computers as available resources for the performance of said work;
 - (b) receiving performance related values of said plurality of
cooperating computers;
 - (c) deriving performance related metrics from said performance
related values; and
 - (d) changing said set of specific ones of said plurality of
cooperating computers based on said performance related metrics;

wherein step (b) receives said performance related values over a series of time intervals, and wherein step (c) derives said performance metrics for n periods of each of said intervals, of which the performance metrics of the n th period thereof includes an aggregate of the performance metrics for a current interval plus $n-1$ of the preceding intervals.

2. The method of claim 1, wherein at least one of said plurality of cooperating computers is heterogeneous with respect to the other cooperating computers of said plurality of cooperating computers.

3. The method of claim 1, wherein step (d) adds additional ones of said plurality of cooperating computers to said set or deletes one or more of said specific ones of said plurality of cooperating computers from said set.

4. The method of claim 1, wherein step (d) changes said set independently of any architecture or operating system specific metrics of said plurality of cooperating computers.

5. The method of claim 1, wherein step (d) changes said set independently of any workload specific metrics of said plurality of cooperating computers.

6. The method of claim 1, wherein said performance values are selected from the group consisting of: response times and queue delays.
7. The method of claim 1, wherein a cluster of said plurality of cooperating computers is connected to a node contained in said network, further comprising (e) requesting a manager of said cluster to accept additional work or to give up pending work based on said performance related metrics.
8. The method of claim 7, further comprising (f) requesting said manager of said cluster to start more work or to run more pieces of an application on one or more of the cooperating computers of said cluster.
9. The method of claim 1, wherein step (a) identifies said set at a first time based on said performance related metrics, and wherein step (d) changes said set at a second later time.
10. The method of claim 1, wherein step (d) is performed only when a new value has been received or a request has been made to view the data.
11. The method of claim 1, wherein step (d) forms said performance metrics as an aggregation of said values.

12. The method of claim 11, wherein step (d) forms said performance metrics for each of said plurality of said cooperating computers.

13. The method of claim 12, wherein step (d) is performed only when a new one of said values is received or a request to view the performance metric is received.

14. (Cancelled)

15. The method of claim 1, wherein the performance metrics of the nth period of a preceding interval are discarded during a current interval.

16. The method of claim 15, wherein said performance metrics for each of said periods include only a number and average of values received.

17. The method of claim 1, wherein each of said performance metrics includes only a number and an average of values received.

18. The method of claim 1, wherein step (c) forms said performance metrics as a data structure having n rows that contain the performance metrics of said n periods, respectively, wherein the performance metrics of the nth row of a preceding interval are discarded during a current interval, and wherein said nth

row of the preceding interval is used as a first row in the current interval and the remaining ones of said n rows are shifted down one row position.

19. A computer having a CPU and a memory comprising:

policy program means for causing said CPU to manage the availability to do work of a plurality of cooperating computers that are connected in a network, said policy program means comprising:

first means for performing a first operation that identifies a set of specific ones of said plurality of cooperating computers as available resources for the performance of work;

second means for performing a second operation that receives performance related values of said plurality of cooperating computers;

third means for performing a third operation that derives performance related metrics from said performance related values; and

fourth means for performing a fourth operation that changes said set of specific ones of said plurality of cooperating computers based on said performance related metrics;

wherein said second operation receives said performance related values over a series of time intervals, and wherein said third operation derives said performance metrics for n periods of each of said intervals, of which the performance metrics of the n th period thereof includes an aggregate of the performance metrics for a current interval plus $n-1$ of the preceding intervals.

20. The computer of claim 19, wherein at least one of said plurality of cooperating computers is heterogeneous with respect to the other cooperating computers of said plurality of cooperating computers.
21. The computer of claim 19, wherein said fourth operation adds additional ones of said plurality of cooperating computers to said set or deletes one or more of said specific ones of said plurality of cooperating computers from said set.
22. The computer of claim 19, wherein said fourth operation changes said set independently of any architecture or operating system specific metrics of said plurality of cooperating computers.
23. The computer of claim 19, wherein said fourth operation changes said set independently of any workload specific metrics of said plurality of cooperating computers.
24. The computer of claim 19, wherein said performance values are selected from the group consisting of: response times and queue delays.
25. The computer of claim 19, wherein a cluster of said plurality of cooperating computers is connected to a node contained in said network, further comprising a fifth means for performing a fifth operation that requests a manager of said

cluster to accept additional work or to give up pending work based on said performance related metrics.

26. The computer of claim 25, further comprising sixth means for performing a sixth operation that requests said manager of said cluster to start more work or to run more pieces of an application on one or more of the cooperating computers of said cluster.

27. The computer of claim 19, wherein said first operation identifies said set at a first time based on said performance related metrics, and wherein said fourth changes said set at a second later time.

28. The computer of claim 19, wherein said fourth operation is performed only when a new value has been received or a request has been made to view the data.

29. The computer of claim 19, wherein said fourth operation forms said performance metrics as an aggregation of said values.

30. The computer of claim 29, wherein said fourth operation forms said performance metrics for each of said plurality of said cooperating computers.

31. The computer of claim 30, wherein said fourth operation is performed only when a new one of said values is received or a request to view the performance metric is received.

32. (Cancelled)

33. The computer of claim 19, wherein the performance metrics of the n th period of a preceding interval are discarded during a current interval.

34. The computer of claim 33, wherein said performance metrics for each of said periods include only a number and average of values received.

35. The computer of claim 19, wherein each of said performance metrics includes only a number and an average of values received.

36. The computer of claim 19, wherein said third operation forms said performance metrics as a data structure having n rows that contain the performance metrics of said n periods, respectively, wherein the performance metrics of the n th row of a preceding interval are discarded during a current interval, and wherein said n th row of the preceding interval is used as a first row in the current interval and the remaining ones of said n rows are shifted down one row position.

37. A memory medium for controlling a computer, said memory medium comprising:

a policy manager program that controls said computer to manage the availability to do work of a plurality of cooperating computers connected in a network, said policy manager program comprising program instructions:

for controlling said computer to perform a first operation that identifies a set of specific ones of said plurality of cooperating computers as available resources for the performance of work;

for controlling said computer to perform a second operation that receives performance related values of said plurality of cooperating computers;

for controlling said computer to perform a third operation that derives performance related metrics from said performance related values; and

for controlling said computer to perform a fourth operation that changes said set of specific ones of said plurality of cooperating computers based on said performance related metrics;

wherein second operation receives said performance related values over a series of time intervals, and wherein said third operation derives said performance metrics for n periods of each of said intervals, of which the performance metrics of the n th period thereof includes an aggregate of the performance metrics for a current interval plus $n-1$ of the preceding intervals.

38. The memory medium of claim 37, wherein at least one of said plurality of cooperating computers is heterogeneous with respect to the other cooperating computers of said plurality of cooperating computers.

39. The memory medium of claim 37, wherein said fourth operation adds additional ones of said plurality of cooperating computers to said set or deletes one or more of said specific ones of said plurality of cooperating computers from said set.

40. The memory medium of claim 37, wherein said fourth operation changes said set independently of any architecture or operating system specific metrics of said plurality of cooperating computers.

41. The memory medium of claim 37, wherein said fourth operation changes said set independently of any workload specific metrics of said plurality of cooperating computers.

42. The memory medium of claim 37, wherein said performance values are selected from the group consisting of: response times and queue delays.

43. The memory medium of claim 37, wherein a cluster of said plurality of cooperating computers is connected to a node contained in said network,

wherein said program instructions further control said computer to perform a fifth operation that requests a manager of said cluster to accept additional work or to give up pending work based on said performance related metrics.

44. The memory medium of claim 43, wherein said program instructions further control said computer to perform a sixth operation that requests said manager of said cluster to start more work or to run more pieces of an application on one or more of the cooperating computers of said cluster.

45. (Original) The memory medium of claim 37, wherein said first operation identifies said set at a first time based on said performance related metrics, and wherein step (d) changes said set at a second later time.

46. The memory medium of claim 37, wherein said fourth operation is performed only when a new value has been received or a request has been made to view the data.

47. The memory medium of claim 37, wherein said fourth operation forms said performance metrics as an aggregation of said values.

48. The memory medium of claim 47, wherein said fourth operation forms said performance metrics for each of said plurality of said cooperating computers.

49. The memory medium of claim 48, wherein said fourth operation is performed only when a new one of said values is received or a request to view the performance metric is received.

50. (Cancelled)

51. The memory medium of claim 37, wherein the performance metrics of the nth period of a preceding interval are discarded during a current interval.

52. The memory medium of claim 51, wherein said performance metrics for each of said periods include only a number and average of values received.

53. The memory medium of claim 37, wherein each of said performance metrics includes only a number and an average of values received.

54. The memory medium of claim 37, wherein said third operation forms said performance metrics as a data structure having n rows that contain the performance metrics of said n periods, respectively, wherein the performance metrics of the nth row of a preceding interval are discarded during a current interval, and wherein said nth row of the preceding interval is used as a first row

in the current interval and the remaining ones of said n rows are shifted down one row position.

55. A method comprising:

managing the availability to do work of a plurality of cooperating computers, which are connected in a network and which comprise a cluster of said cooperating computers connected to a node contained in said network, by:

(a) identifying a set of specific ones of said plurality of cooperating computers as available resources for the performance of said work;

(b) receiving performance related values of said plurality of cooperating computers;

(c) deriving performance related metrics from said performance related values;

(d) changing said set of specific ones of said plurality of cooperating computers based on said performance related metrics;

(e) requesting a manager of said cluster to accept additional work or to give up pending work based on said performance related metrics;

(f) requesting said manager of said cluster to start more work or to run more pieces of an application on one or more of the cooperating computers of said cluster; and

wherein step (d) forms said performance metrics as an aggregation of said values for each of said cooperating computers, wherein step (b) receives said

performance related values over a series of time intervals, and wherein step (c) derives said performance metrics for n periods of each of said intervals, of which the performance metrics of the nth period thereof includes an aggregate of the performance metrics for a current interval plus n-1 of the preceding intervals, wherein step (c) forms said performance metrics as a data structure having n rows that contain the performance metrics of said n periods, respectively, wherein the performance metrics of the nth row of a preceding interval are discarded during a current interval, and wherein said nth row of the preceding interval is used as a first row in the current interval and the remaining ones of said n rows are shifted down one row position.

Conclusion

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Camquy Truong whose telephone number is (571) 272 -3773. The examiner can normally be reached on 8 AM- 5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on (571) 272-3756. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

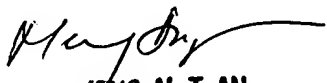
Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIP. Status information for unpublished applications is available through Private PAIR only. For

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more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIP system, contact the Electronic Business Center (EBC) at 866-217-9197(toll-free).

Camquy Truong

August 17, 2005


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